International Nuclear Energy Initiative (I-NERI)

Office of Nuclear Energy, Science and Technology
U. S. Department of Energy

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Background

In response to the advice of the President's Committee of Advisors on Science and Technology (PCAST), the U.S. Department of Energy (DOE) created the Nuclear Energy Research Initiative (NERI) in 1999 to help overcome the principal technical and scientific issues affecting the future use of nuclear energy in the United States. Following the 1999 PCAST report entitled *Powerful Partnerships: The Federal Role in International Cooperation on Energy Innovation*, DOE established the International Nuclear Energy Research Initiative (I-NERI) to promote bilateral and multilateral research with other nations.

What is I-NERI?

The DOE Office of Nuclear Energy, Science, and Technology (NE) is coordinating wide-ranging discussions among governments, industry, and the research community worldwide on the development of Generation IV nuclear energy systems. In support of this effort, DOE established I-NERI as a key research and development mechanism for implementing cooperative work on Generation IV nuclear energy systems.

I-NERI Goals & Objectives

The goal of the I-NERI program is to sponsor innovative scientific and engineering R&D in cooperation with other countries to address the key issues affecting the future of nuclear energy and its global deployment by improving cost performance, enhancing safety, and increasing proliferation resistance of future nuclear energy systems. In accomplishing this primary goal, the following objectives have been established for the I-NERI program:

- Develop advanced concepts and scientific breakthroughs in nuclear energy and reactor technology to address and overcome the principal technical and scientific obstacles to the expanded use of nuclear energy worldwide.
- Promote bilateral and multilateral collaboration with international agencies and research organizations to improve development of nuclear energy.
- Promote and maintain nuclear science, engineering, and education infrastructure to meet future technical challenges.

Research Areas

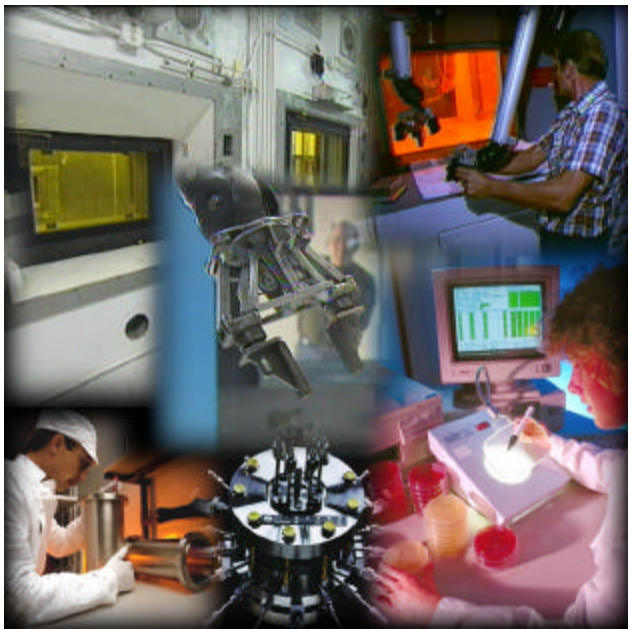
I-NERI sponsors innovative research and development in the following general areas:

- Next-generation nuclear energy systems, fuel cycle technology, and nuclear energy plant designs with higher efficiency, lower cost, and improved safety and proliferation resistance (*i.e., Generation IV*);
- Innovative nuclear plant design, manufacturing, construction, operation and maintenance technologies;
- Advanced nuclear fuels and materials; and
- Fundamental nuclear science.

Specific research areas are defined as part of each cooperative agreement based on mutually agreed upon research needs and priorities.

R&D Approach

I-NERI provides an effective means for international collaboration on a leveraged, cost-shared basis. Actual cost-share amounts are determined for each jointly selected project. The program is designed to achieve a 50-50 funding contribution with each partner country, while exercising flexibility toward developing countries.



The network of international partnerships established through the I-NERI bilateral agreements results in well-coordinated and cost-effective research and development.

I-NERI Organization and Control

Bilateral I-NERI agreements are established under existing or new "umbrella" agreements between the United States and collaborating countries. The U.S. element of I-NERI is managed by DOE-NE and receives guidance from DOE's independent Nuclear Energy Research Advisory Committee (NERAC). A Bilateral I-NERI Steering Committee (BINERIC) made up of representatives from the United States and the cooperating country identifies specific research areas for mutually beneficial collaboration and manages the bilateral cooperation arrangements, including required agreements, eligibility for participation, project selection processes, joint funding structure, and contractual vehicles.

Project Selection

Collaborative R&D proposals are solicited simultaneously in the United States and in the participating country.

Joint research teams are formed to create integrated project proposals. Proposals are formally reviewed and grants awarded on a merit basis to select the best collaborative projects that meet the research needs. The BINERIC makes the final selection recommendations to DOE and its international partner.

FY 2001-2004 Accomplishments and Plans

- The first bilateral I-NERI agreement was established in May 2001, between DOE and the Republic of Korea's Ministry of Science and Technology. Following a competitive solicitation, six collaborative R&D projects were awarded in early FY 2002. Following a second competitive solicitation, five new projects were awarded in early FY 2003.
- A second bilateral I-NERI agreement between DOE and the French *Commissariat < L'Energie Atomique* was completed in July 2001. Five projects were awarded under this agreement -- three in FY 2001 and two in FY 2002.
- A third agreement was established with the Organisation for Economic Co-operation and Development (OECD). One project was awarded under this agreement in FY 2002.
- Additional bilateral agreements with Brazil, Canada, Japan and are expected to be finalized in FY 2003. New collaborative R&D projects will be awarded under the established agreements. Agreements with the Republic of South Africa and the United Kingdom are also being discussed, and it is expected that these I-NERI agreements will be finalized in FY 2004.
- In FY 2004, the collaborative projects initiated in prior years will be continued. No additional collaborative projects will be awarded.

Program Budget[1]
I-NERI
($ in Millions)

FY 2002 Appropriation	FY 2003 Request	FY 2004 Request
$9.1	$6.8	$4.3

[1]I-NERI funding is provided in the NERI appropriation.

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